APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,951	07/17/2003	Mark Allen Grubbs	AUS920030463US1	1546

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ART UNIT	PAPER NUMBER
2163	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/621,951	GRUBBS ET AL.
	Examiner	Art Unit	
	Charles E. Lu	2163	.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>01 June 2006</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>*1-20*</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>*1-20*</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>*17 July 2003*</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment/Response to Arguments

1. This Action is in response to the amendment dated 6/1/2006. Claims 1-9, 11, 13, 15-16, 18, and 20 are amended. Claims 1-20 are pending. Claims 1-20 are rejected.

2. Amendment to the specification for addressing specification and objection objections is acknowledged. Objection to the specification and drawings are withdrawn.

3. Amendment to the claims for addressing the 35 U.S.C. 112, second paragraph rejection is acknowledged. The 35 U.S.C. 112, second paragraph rejection is withdrawn for claims 10 and 17.

4. Amendment to the claims necessitates new grounds of rejection as presented in this Office Action. New grounds are necessitated because a new limitation, including "mount point", is introduced into each independent claim. Applicants argue the claims as amended.

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as
> set forth in section 102 of this title, if the differences between the subject matter sought to be
> patented and the prior art are such that the subject matter as a whole would have been obvious
> at the time the invention was made to a person having ordinary skill in the art to which said
> subject matter pertains. Patentability shall not be negatived by the manner in which the invention
> was made.

5. Claims 1, 4, 6-8, 11, 13-15, 18, and 20 are rejected under 35 U.S.C. 103(a)

as being unpatentable over Sinha (U.S. Patent 5,437,029) in view of Pinkoski (U.S.

Patent 5,742,817) further in view of Achiwa et al (Pub. No. 2003/0110190), all of

record.

As to claim 1, Sinha teaches the following claimed subject matter for a file

system:

Determining at least one frequently accessed file system object in a file system

(col. 7, ll. 40-42, col. 2, ll. 58-60), each file system object having a pathname and a node

number (fig. 3, 4A, col. 7, ll. 58-64), the node number for locating the file system object

on a storage system (col. 7, ll. 60-65);

Entering the pathname of the at least one file system object into a memory

system (see fig. 3, 4A, col. 7, ll. 47-52); and

Cross-referencing the pathname of the at least one file system object in the memory system with its node number thereby enabling the node number to be obtained with one memory access (col. 7, ll. 47-52, 57-62, col. 2, ll. 57-66, fig. 3, 4A).

Sinha does not expressly teach wherein the nodes are inodes.

However, Pinkoski describes a conventional file system wherein nodes are inodes (col. 1, ll. 10-60).

Since Sinha and Pinkoski are both drawn towards optimizing file system access, and the nodes of Sinha and inodes of Pinkoski both specify location information of a file, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sinha with the conventional art stated in Pinkoski, such that the nodes are inodes. The motivation would have been to optimize file access, as taught by Sinha (col. 2, ll. 1, l. 54 – col. 2, l. 65, col. 7, ll. 17-68), on a system with inodes.

Sinha and Pinkoski do not expressly teach, "upon mounting the file system at a mount point on a computer system."

However, Achiwa teaches processing upon mounting the file system at a mount point on a computer system (see fig. 7, para. 72, 73).

Therefore, it would also have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Sinha and Pinkoski with the teaching of Achiwa, such that when a file system is mounted, the frequently accessed objects of Sinha and Pinkoski above would be determined. The motivation would have been to immediately provide access (Achiwa, para. 0073) to the frequently accessed objects above when a file system is installed or mounted.

As to claim 4, Sinha, as modified by Pinkoski and Achiwa, further teaches wherein the determining step includes the step of obtaining the pathname from a user (col. 7, ll. 40-52). Note that when the user requests access to a file, the pathname for the file has to be obtained to locate the file. Therefore, Sinha at least indirectly obtains the file and pathname from a user.

As to claim 6, the combination of Sinha, Pinkoski, and Achiwa do not expressly teach wherein the pathname of the file system object and its cross-referenced inode number are removed from the memory system when the file system containing the file system object is unmounted.

However, the combination as described above teaches caching pathnames of mounted file systems.

Additionally, it has been held that the omission of an element and its function is obvious if the function of the element is not desired. *Ex parte Wu*, 10 USPQ 2031 (Bd. Pat. App. & Inter. 1989). In this case, the omission (removal) of cached paths of the mounted file system as described above is obvious when the function of the cached paths is not desired. Unmounting the system can cause the cached paths to not be desired, because unmounting causes the mounted parts of the file system to be removed from the rest of the file system (opposite of mounting), and thus the cached mounted paths would contain references to data that no longer exist in the file system (see fig. 7 of Achiwa but picture the mounted portion(s) being unmounted).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sinha, Pinkoski, and Achiwa with the above

teachings, such that the file system object (path) and cross referenced inode number is removed (from the cache memory) when the corresponding file system is unmounted. The motivation, as known to one of ordinary skill in the art, would have been to save memory in the cache taught by Sinha (see fig. 3, 4A), since the cache may have otherwise been occupied by invalid data.

As to claim 7, Sinha, as modified by Pinkoski and Achiwa, further teaches wherein a pathname of a file system object and its cross-referenced inode number is removed from the memory system when a user so ordered (col. 8, ll. 1-39). Note that the user is requesting (ordering) that the file be no longer accessed using a particular access mode.

Claims 8 and 15 are rejected because they claim the same invention as method claim 1, in the form of a computer program or system.

Claims 11 and 13 are rejected because they are drawn to computer programs claiming the same invention as system claims 18 and 20.

Claim 14 is rejected because it claims the same invention as claim 7. The reasoning for claim 7 applies to claim 14.

Claim 18 is rejected because it claims the same invention as claim 4. The reasoning for claim 4 applies to claim 18.

Claim 20 is rejected because it claims the same invention as claim 6. The reasoning for claim 6 applies to claim 20.

6. Claims 2, 3, 9, 10, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinha (U.S. Patent 5,437,029) in view of Pinkoski (U.S. Patent

5,742,817) further in view of Achiwa et al (Pub. No. 2003/0110190), further in view of Nevarez (U.S. Patent 5,499,358), further in view of Bauer (U.S. Patent 5,388,257), all of record.

As to claim 2 and claim 3, Sinha, Pinkoski, and Achiwa do not expressly teach obtaining from an extended attribute file a list of path names, the extended attribute file being associated with the mounted file system.

However, Nevarez teaches in a file system, obtaining from an extended attribute file a list of files and directories (e.g., all files and directories matching a tag "word processing" from using the extended attribute file, col. 4, ll. 54-64).

Furthermore, Bauer teaches that files are named by path names (col. 4, ll. 18-23).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Sinha, Pinkoski, and Achiwa with the above teachings, such that "obtaining from an extended attribute file a list of path names" is implemented, and the mounted file system has an extended attribute file. The motivation would have been to specify a path to the files that match a search condition of Nevarez (col. 4, ll. 57-63), since the path is important to access a file in a file system, as known to one of ordinary skill in the art. The teachings of Nevarez would also be helpful for the mounted file system taught by Achiwa because the extended attributes facilitate managing, maintaining, and controlling file systems (col. 1, ll. 65-67).

Sinha, Pinkoski, Achiwa, Nevarez, and Bauer do not expressly teach "a list of pathnames to be entered into the memory system."

However, in the combination, Sinha would cache frequently used path names, as seen in fig. 3 and 4B. Certain path names, corresponding to the "word processing" and "spreadsheet" type, as taught by Nevarez in combination with Bauer above, can be frequently accessed, depending on the user's requirement (Sinha, col. 7, ll. 40-52). Finally, the returned results of Nevarez and Bauer can be a list of names, because search results are conventionally a list of results.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Sinha, Pinkoski, Achiwa, Nevarez, and Bauer with the above teachings, such that the returned list of pathnames of Nevarez and Bauer would correspond to frequently accessed path names as defined by the user, and thus would be entered into the memory system (cache) of Sinha. The motivation would have been to increase file access performance (Sinha, col. 2, ll. 1, l. 54 – col. 2, l. 65, col. 7, ll. 17-68) for all files of a certain type (Nevarez, col. 4, ll. 55-64).

Sinha, Pinkoski, Achiwa, Nevarez, and Bauer do not expressly teach "wherein the path names in the extended attribute file are relative to the mount point."

However, Achiwa teaches wherein path names are relative to the mount point (see fig. 7 and related text). As discussed above, path names and an extended attribute file are taught.

Therefore, it would also have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Sinha, Pinkoski, Achiwa, Nevarez, and Bauer, such that path names in the extended attribute are relative to the mount

point. One motivation would have been to provide a valid path for access, as known to one of ordinary skill in the art.

Claims 9, 10, 16, and 17 are rejected because they claim the same invention as claims 2 and 3, discussed above.

7. **Claims 5, 12, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinha (U.S. Patent 5,437,029) in view of Pinkoski (U.S. Patent 5,742,817) further in view of Achiwa et al (Pub. No. 2003/0110190) further in view of Falkner (U.S. Patent 5,713,008), all of record.**

As to claim 5, Sinha, Pinkoski, and Achiwa do not expressly teach wherein determining includes monitoring accesses to a file system object within a certain time span.

However, Falkner teaches monitoring accesses to a file system object within a certain time span (col. 6, II. 10-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sinha, Pinkoski, and Achiwa with the above teachings, such that determining includes monitoring accesses to a file system object within a certain time span. The motivation would have been to estimate a file cache size to be stored on the client computer, as taught by Falkner (col. 1, I. 65 – col. 2, I. 10). This would be advantageous for the "type 2" access of Sinha, because in this mode, the files are cached on the client system (Sinha, col. 8, I. 67 – col. 9, I. 16).

Claims 12 and 19 are rejected because they claim the same invention as claim 5, discussed above.

Conclusion

8. Due to amendment, new grounds of rejection are necessitated. Accordingly,

THIS ACTION IS MADE FINAL. See MPEP 706.07(a). Applicant is reminded of the

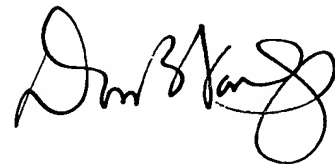extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Charles E. Lu whose telephone number is (571) 272-

8594. The examiner can normally be reached on 8:30 - 5:00; M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

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